AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1-13. (canceled).

14. (currently amended) A device for measuring [[a]] an electric current, comprising:

a sensor (3) positioned in an airgap of a core (N) of a transformer (B) and sensitive to a direction of a magnetic field prevailing in the airgap,

the transformer, in use, having a first electric current (i_1) of a first magnetic field of a first direction generated by a primary winding (1) of the transformer,

the transformer, in use, having the first electric current balanced by a second magnetic field of second direction opposite the first direction and generated by a secondary winding (2) of the transformer in which a second compensating current (i_2) flows,

the magnetic field in the airgap being a field resulting from an addition of the first and second magnetic fields,

the sensor (3) configured to regulate said compensating current (i_2) in closed loop mode by the sensor (3) sensing only a

direction of said resultant magnetic field and controlling a reversal of a direction of circulation of the compensating current (i_2) in said secondary winding (2), the sensor being sensitive only to the direction of said resultant magnetic field,

a measurement resistor (R_m) placed in series with the secondary winding (2) to obtain a value of the first current (i_1) through a measurement of the second compensating current (i_2), and

a temperature correction element (10) for the circuit of said secondary winding (2),

the temperature correction element being connected in series with the measurement resistor.

15. (previously presented) The device of claim 14, further comprising:

an electrical power supply connected to the secondary winding, the power supply comprising i) transistors configured as an H-configuration transistor bridge (Q_1, Q_2, Q_3, Q_4) and ii) freewheeling diodes (D_1, D_2, D_3, D_4), the power supply being supplied by a supply voltage (V+).

16. (previously presented) The device of claim 15, further comprising:

a controller (5) connected to the transistor bridge and to an output signal (S) of the sensor, the controller arranged to provide closed loop mode regulation of current flowing in the

secondary winding, the controller being controlled by the output signal (S) of the sensor.

17. (previously presented) The device of claim 16, wherein,

the sensor is a bipolar output Hall effect probe.

18. (previously presented) The device of claim 17, wherein,

the output signal of the sensor (8) is a square wave with a positive value equal to the supply voltage (+V) and a low value equal to a zero (0) voltage level.

19. (currently amended) The device of claim 16, wherein,

the output signal of the sensor (8) is a square wave with a positive value equal (V+) and a low value equal to a zero voltage level,

the magnetic field alternates between

i) the magnetic field in the airgap prevailing in a first direction causing the output signal to have the positive value and the output signal acting on the controller to keep a first set of transistors (Q_1, Q_3) of the transistor bridge turned on and a second set of transistors of the transistor bridge turned off, and

ii) the magnetic field in the airgap prevailing in a second direction causing the output signal to have the low value and the output signal acting on the controller to keep the second set of transistors (Q2, Q4) turned on and the first set of transistors turned off.

20. (previously presented) The device of claim 19, wherein,

while the first electric current (i_1) and the first magnetic field exceed the second current (i_2) and the second magnetic field the output signal has the positive value and direction of the magnetic field in the airgap is a first direction,

upon the second electric current exceeding the first electric current, the direction of the magnetic field in the airgap reverses to a second direction and the output signal switches to the low value.

21. (previously presented) The device of claim 20, wherein,

the output signal is a pulse width modulation signal oscillating about a mean value corresponding to a zero flux of the magnetic field in this airgap, and

oscillation of the output signal is self-maintaining.

22. (cancelled).

23. (previously presented) The device of claim 14, wherein,

core (N) is a ferromagnetic material.

24-25. (cancelled).

26. (previously presented) The device of claim 14, further comprising:

an H-configuration transistor bridge (4) positioned in a power supply circuit of said secondary winding (2) and a controller (5) connected to control reversal by said bridge (4) of the direction of the second current (i_2) circulating in said secondary winding (2), in response to the transitions of the signal delivered by said sensor (3).

27. (previously presented) The device of claim 14, wherein said device is an automotive electronic.

28-33. (cancelled).